

**Desert Citizens Against Pollution**  
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Mr. Todd Thompson,  
 Associate Water Resources Control Engineer  
 Division of Water Quality  
 State Water Resources Control Board  
 P. O. Box 944213  
 801 P Street  
 Sacramento, CA 94244-2130

September 9, 1999

Dear Mr. Thompson,

We are pleased to submit comments on the Draft Environmental Impact Statement for the Land Application of Sewage Sludge (Biosolids Land Application).

**Lack of Availability of DEIR:**

The DEIR was neither posted on the internet or available to the general public for review (the cost to obtain a copy was \$42.00). This cost would prohibit the general public from ordering a copy. While the DEIR was available at libraries, it was not available for check-out, so any reviewer would have had to sit in the library during normal business hours and review the document. Since many members of the public work during the day, this would not be convenient for them. The agency should have posted the document on the web and made free copies available to the public.

**Alternatives Analysis:**

The Alternatives Analysis is incomplete, it does not cover the numerous different alternatives that could have been undertaken to mitigate the effects of spreading toxic-laden waste on California lands, including:

1. landfilling the waste in sludge monofills
2. landfilling the waste in Subtitle C or D landfills
3. instituting aggressive standards to keep chemicals out of sewage sludge
4. sterilizing the sludge to kill pathogens
5. re-engineering sewage systems to keep industrial wastes and human sewage separate

**Radionuclides:**

The Environmental Protection Agency and the Association of Metropolitan Sewerage Agencies (AMSO) have warned POTWs to police their sewer systems for Radiation. California has over 2,000 permits issued to users of radioactive equipment and materials,

some of these users dispose of radioactive materials down the drain. It is clear that neither the government nor the public has any idea what amounts and types of radionuclides are in sewage sludge. Until that determination is made it is premature to say that spread sewage sludge on lands in California is safe. A rigorous testing program would need to be instituted to determine that no radionuclides were in sewage sludge before such a practice could be considered safe for public health and the environment. (See attached article- Appendix 1)

**Dioxin and PCBs:**

Dioxin is one of the most toxic chemicals known, it is carcinogenic and is a developmental toxin and endocrine disrupter. The International Agency for the Registry of Cancer (IARC) classifies it as a known human carcinogen. It is known to bioaccumulate up to 1 million times its level in the ambient surroundings in soil and water. Its prevalence in sewage sludge is unknown, the EPA is in the process of surveying sewage sludge nationally for the extent of dioxin contamination. Until the extent of contamination is known for California sludge, it cannot be said that it is safe to spread on land. There have been no studies on the extent of dioxin contamination in sewage sludge in California.

Some fruits and vegetables take up more dioxin than others (Soil-Plant Transfer of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans to Vegetable of the Cucurbit Family, Environmental Science Technology, 1994, 28, 1110-1115). Not enough research has been done of specific fruits and vegetable to know which ones will take up more than other, yet the General Order (GO) allows unrestricted use of dioxin-laced lands spread with sludge only 18 months after spreading, yet dioxin persists for decades in the environment.

PCBs are known to occur in sewage sludge, they are carcinogenic a developmental toxin and disrupt the endocrine system. The extent of contamination of California sewage sludge with PCBs is also unknown, and the effects of spreading this potentially PCB laden material on California lands cannot be ascertained without knowing the extent of this contamination.

**Phthalates:**

Phthalates occur in large amounts in sewage sludge and are aquatic toxins, as well as being listed in the Report on Carcinogens and on the Prop 65 list as a carcinogen. It is also known to be a reproductive toxin, attacking the Sertoli cells in the testicle. The impacts of spreading this chemical, which persists in the environment on California lands is unknown. The Department of Toxic Substance Control does not regulate its presence in hazardous waste even though it commonly occurs in many wastes, including sewage sludge.

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#### Alkylphenol ethoxylates (APEs):

APE degrade into nonylphenols when discharged into sewage sludge, the impacts of nonylphenols on the environment when spread onto California lands has not been ascertained. NPs are highly toxic to the aquatic environment and dangerous to human health. As a direct result of anaerobic sludge treatment, large amounts of NPs are formed. Nonylphenols are both attached to the sludge solids and discharged with the treated sewage effluent. Nobody knows what happens when these chemicals are spread on fields and forests. In the United States, nobody is looking. According to researchers at the Swiss Federal Institute for Water Resources and Water Pollution Control (EAWAG), "Compared to other chemicals contained in sewage sludge such as polychlorinated biphenyls, polynuclear aromatic hydrocarbons and pesticides like lindane or dieldrin, the flux of LAS (the most commonly used surfactant in laundry detergents) and NPs in sludge is several orders of magnitude higher."

#### Worker Exposure:

A 1984 study (Toxicologic Studies Associated with the Agricultural Use of Municipal Sewage Sludge and Health Effects among Sewage Treatment Plant Workers, (Regulatory Toxicology and Pharmacology 4, 305-321, 1984)) showed the potential for adverse effects on workers exposed to sewage sludge. This problem has not been mitigated.

#### Windborne Sludge:

I personally have witnessed sludge liberated into the air and blown for thousands of meters during sludge spreading operations on a breezy day in the Antelope Valley. After spreading on lands, this sludge became windborne as well. This eventually can only be mitigated by prohibiting the land application of sludge as the wind can arise anytime during spreading or after the sewage sludge has been spread. In fact, permits to spread sludge in the Antelope Valley were revoked after a regulatory official from the water board observed windblown sludge during spreading operations. For the DEIR to say this is not significant is arbitrary and capricious. Airborne toxins and pathogens are a significant public health threat.

#### Compliance:

In 1992, the USEPA reported that many POTWs were failing to enforce the Clean Water Act's pretreatment programs. The USEPA noted a large rate of significant noncompliance by large industrial dischargers, (Statistical Assessment of National Significant Industrial User Noncompliance, June 1992).

Moreover, Steven Herman, the Assistant Administrator for Enforcement and Compliance for US EPA has stated in a 1997 memo to Robert Perciasepe, Assistant Administrator of the US EPA, the "Agency resources devoted to the oversight of biosolids (sludge) management under the Clean Water Act are insufficient to provide adequate assurances to

the public about the integrity and soundness of biosolids management in the United States."

#### Metals Concentrations:

The proposed metal limits differ significantly from those proposed for the Netherlands, which based their limits on what they felt was protective of the environment and public health. (See Appendix 2) This would appear to indicate that the maximum metal limits were chosen for a reason other than the protection of human health and the environment.

#### Industrial Discharges to POTWs:

The toxic release inventory (TRI) shows 17,947,059 pounds of toxic chemicals transferred to California POTWs in 1997. The impact of spreading a large amount of these toxins on California lands is not adequately addressed.

(Reference: <http://www.epa.gov/enviro/html/tris/state/california.html>)

Among other things, many of the issues we identified in our initial review of the proposed GO still remain unanswered by the current DEIR:

1. The kinds and amounts of testing required to prove that the sewage sludges meet the limitations required. a
2. There are no limits on organic chemicals of any kind, dioxin, PCBs, PCP, DDT, phthalates, TCE, PCE. Standards for organic chemicals found in sludge need to be included. b
3. There is no pathogen monitoring plan. c
4. There is no specific groundwater monitoring plan. d
5. There is no plan to monitor the air surrounding the sludge spreading facilities, despite evidence that mercury emissions rise around lands spread with sludge. e
6. There is no plan to monitor storm runoff from lands which have had sludge applied. f
7. There is no requirement for a Non-Point Source Discharge Elimination System (NPDES) Permit. g
8. There is no bioaerosol monitoring plan required. h
9. There is no monitoring plan to indicate when maximum loading have taken place. i
10. There are not maximum loadings for anything but metals, maximum loadings should be set for organic chemicals as well. At a minimum, limits for all chemicals on the Proposition 65 list should be set. j
11. Pathogen reduction limits should be at the detection limits for all pathogens, not what the federal regulations specify. The risk of airborne pathogens is just too great, especially now that antibiotics are becoming less effective against common pathogens. k

In conclusion, we disagree with the conclusion that the adverse effects of land applying sewage sludge laced with toxic chemicals can be mitigated without looking at other disposal and treatment alternatives. Which this DEIR has failed to do.

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Appendix 2

Thank you for your kind attention to our comments, please don't hesitate to contact us with any questions or concerns.

Sincerely,

*Jane Williams*  
Jane Williams  
for the members

Maximum Acceptable Metal Concentration  
Allowed in Sewage Sludge  
(mg/kg dry weight)

Metal	California	Netherlands
Arsenic	41	0
Cadmium	39	1.25
Chromium	1200	7.50
Copper	1500	7.50
Lead	300	7.50
Mercury	17	.075
Nickel	420	3.80
Selenium	36	NA
Zinc	2800	300

## Appendix 1

Biosolids

occurring radioactivity, and

"support potential rulemaking decisions by NRC or EPA, if necessitated by the survey results."

NRC and EPA did a sample survey of nine POTWs which was used to refine the survey's "questionnaire methods and sampling and analytical procedures." The sample was used to ensure consistency of testing methods used by NRC and EPA labs.

For a large number of the isotopes which were being tested in the pilot survey there was no detectable level, and many other radionuclides were found in only low levels. However, dose modeling work is still in progress for NRC and EPA to determine what levels of certain isotopes will be considered hazardous. That effort will not be complete for about a year and wastewater groups have launched their own dose modeling study (see related story).

According to both EPA and industry sources, the questionnaires have not yet been sent out due to difficulties with the mailing list. But, the National Biosolids Partnership has already sent out a guidance to POTWs encouraging them to participate when they do receive the questionnaires (see related story).

## AMSA AND EPA WARN POTWs TO POLICE THEIR SYSTEMS FOR RADIATION

Wastewater treatment officials and EPA are urging publicly owned treatment works (POTWs) to police industrial facilities discharging radioactive material into the sewer system. The move is part of initial efforts by the federal government to determine the extent of radioactive discharges nationwide.

The National Biosolids Partnership, which consists of EPA, the Association of Metropolitan Sewerage Agencies (AMSA), and the Water Environment Federation, has recently released the final version of its guidance on monitoring radioactive discharges (*Water Policy Report*, April 14, p9). The guidance, *Characterization of Radioactively Sources at Wastewater Treatment Facilities*, is intended to both encourage POTWs to monitor their discharges and participate in an upcoming EPA and Nuclear Regulatory Commission (NRC) sponsored survey (see related story). The guidance also explains the legal authority of POTWs to take action against dischargers of radioactive waste, including severing their sewer connection.

One AMSA source described the guidance as an attempt to "better characterize what types of discharges are entering the (POTW's) system, and means of monitoring and sampling for these discharges." Another source said that the guidance encourages POTWs to monitor their own dischargers because, "NRC has no clue what's going on with the dischargers."

Certain types of radioactive material are considered naturally occurring radioactive material (NORM), such as fertilizer, human waste, and some building materials. NORM is generally not considered hazardous and is not covered by the guidance.

The guidance explains means of locating the dischargers in a POTW's system as the first step toward monitoring radioactive waste in the system. POTWs are encouraged to get a list of all licensed dischargers of radioactive waste into their waters from NRC.

Once that list is obtained, POTWs will be able to determine which facilities merit a closer look. The majority of the discharges will immediately show themselves to be of no concern, but a few may require closer inspection.

The inspection, according to the guidance, should begin on paper by reviewing the facility's records, license, and building plan. The physical inspection should be thorough and conducted by trained inspectors. In addition to inspecting the discharging facilities, POTWs are encouraged by the guidance to inspect their own facilities to determine the effect of radioactive discharges on their system.

The guidance also briefly discusses the legal authority that a POTW has to address discharges of radioactive material into the system. As one AMSA source explains, "the POTW community does not have the authority to regulate NRC-licensed dischargers," so NRC is the first step for enforcement and if that fails, seek remedy from the court. An EPA source however says that POTWs do have the ability to crack down on dischargers, perhaps by simply refusing to accept the wastewater from an uncooperative discharger.

The guidance also encourages POTWs to participate in an upcoming sewage sludge radioactivity survey by EPA and NRC. The National Biosolids Partnership hopes the survey may help NRC gain a better understanding of how to regulate licensed dischargers of radioactive materials, according to sources. Many POTWs, however, are unimpressed by the possibility of discovering that they have levels of radiation which exceed the permissible limit, these sources say.

Politics and bureaucracy have buried science at the nation's top environmental agency, critics say

By Jeff Nease  
Washington

The words "bureaucracy" never found their way into the official language when the Environmental Protection Agency was drafted up after five sprawling hundreds of thousands of tons of treated sewage in forests and on fields.

EPA scientists called the time to express their frustration over what they believed was the agency's stranglehold on considering how levels of toxic pollutants in treatment plant sludge would affect wildlife.

The outcome of an internal debate on the sludge rules is a perfect example of how science is a perfect example of crisis, defeated in a struggle with politics and bureaucracy. That's the conclusion of David Lewis, a microbiologist in EPA's Environmental Research Laboratory at Athens, Ga., and a member of the University of Georgia Institute of Technology, and his supporters at the EPA.

It was modeled after a 1981 study of biological effects of sludge, one of the most thorough studies ever done at the time. It was a 10-page study, published in a journal, and it was a good study. I think, if anything, the study in (fishes) was a well-reminded and



PHOTO BY AP/WIDEWORLD

Regulations allowing the spreading of treated sewage sludge, known as biosolids, on farmland and in forests were approved in 1991, to the dismay of some scientists at the Environmental Protection Agency, who felt more studies needed to be completed.

Rather, it grew increasingly out of profile at events of the 1980s, they say. During that time, Congress passed numerous laws and amendments better known as the Superfund law, just as the Reagan administration was deathly afraid of the possibility of a lawsuit. EPA's sludge rules were a result of a lawsuit, and it was a good study. I think, if anything, the study in (fishes) was a well-reminded and

The Atlanta Journal-Constitution

By Megan Fleming

"Officials, never determined the cumulative impact of sewage sludge, never evaluated soil samples as indicators of the impact to plaintiffs' lands and failed to monitor adequately the contents or volume of the sewage sludge which was applied," the lawsuits said.

But applying properly treated sewage fertilizer to land where livestock graze poses no inherent threat to their health, said Alan Rubin, senior scientist for the U.S. Environmental Protection Agency's Office of Wastewater Management in Washington, D.C. The wastewater department has tested the effects of a variety of metals and other materials in sewage fertilizer, all of which result in little or no harm to the environment, Rubin said.

The Georgia Environmental Protection Division could launch its investigation into the plant in December, said Jeff Larson, manager of permitting, compliance and enforcement.

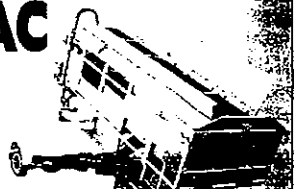
Georgia cities that own sewage treatment plants are responsible for testing their sludge to ensure the resulting fertilizer is free of toxics and is applied to the land properly, he said.

The plants must submit an annual report to the EPD to prove they are meeting state sludge reuse regulations, Larson said. ■

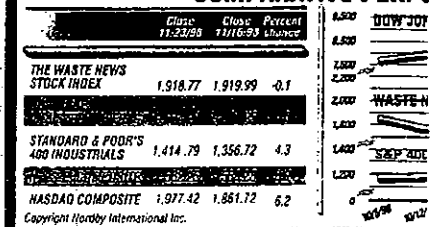
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KTI	1.13	Eastern Environmental	4.50	Philip Ser
Rack Term	1.00	Commercial Metals	2.09	Thomson Jr.
Paine	1.00	Republic Services	1.88	Industrial
Carrollist	0.94	BFI	1.75	Palex

EXCH.	COMPANY (TICKER SYMBOL)	CLOSING PRICE 11/23/98	CLOSING PRICE 11/16/98	PS C. IN
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## WASTE COLLECTION AND DISPOSAL

NAS	Allied Waste Industries Inc. (AWAI)	20.44	20.41
NYS	Bromberg-Farms Industries Inc. (BFI)	31.00	32.75
NAS	Casella-Waste Systems Inc. (CWST)	31.00	30.75
NAS	Eastman Environmental Services Inc. (EESI)	23.94	28.44
NAS	Kaiser Ventures (KASC)	9.56	10.69
NAS	Waste Solutions Inc. (WSOI)	20.11	20.11
NAS	Superior Services Inc. (SUPR)	18.10	17.58
NAS	Waste Connections Inc. (WCNXC)	17.81	19.00
NAS	Waste Industries Inc. (WWTN)	18.00	18.50
NYS	Waste Management Inc. (WMGI)	46.80	46.50
NAS	Waste Systems Inc. (WSTI)	5.81	5.81
NAS	Waste Systems Inc. (WAST)	0.85	0.89

### INCINERATION

NYS	Foster Wheeler Corp. (FWC)**	17.25	16.50
NYS	Ogden Corp. (OGI)**	27.50	29.31

## MEDICAL WASTE

NAS	3CI Complete Compliance (TCCC)	1.00	1.25
NAS	MediVantage Inc. (MWDS)	3.88	4.00
NAS	Stancycle Inc. (SACL)	17.63	18.94

## METALS

NYS	Birmingham Steel (BIR)	4.88	5.26
NYS	Commercial Metals Co. (CMC)	25.44	27.50
NYS	IMCO Recycling Inc. (IMR)	14.69	15.13
NYS	Industrial Services of America Inc. (ISA)	2.88	2.90
NAS	Metel Management Inc. (NTLM)	3.00	3.06
NYS	PNM Services Corp. (PKY)*	0.83	0.22
NAS	Recycling Industries Inc. (RECY)	1.19	1.78
NAS	Schnitzer Steel Industries Inc. (SCHN)*	18.25	17.75

## PAPER

NYS	Boysen Inc. (BOY)	39.94	39.63
NYS	Carlietair Industries (CSAR)	25.75	26.81
NYS	Chesapeake Corp. (CSK)	34.44	35.63
NYS	Consolidated Paper Inc. (COP)	24.00	24.13
NYS	Fort James Corp. (FJ)	39.50	37.58
NYS	KTI Inc. (KTI)	21.13	20.00
NYS	Rock-Tenn Co. (RKT)	15.68	14.98
NYS	Smurfit-Stone Container Corp. (SSCC)	12.58	12.88
NYS	Sonoco Products Co. (SON)	29.50	29.69
NYS	Weyerhaeuser Co. (WY)	47.31	47.13

## OTHER MATERIALS

[illegible]

But, Lewis said, political pressure and court-imposed deadlines prevented the agency from finalizing its judge rules in November 1992. The regulations relied in part on experiments that the Atlanta scientists and others labeled "judge-proof," with little reference to the real world. "We did a lot of things wrong,"

They too, together with what we think are protective and concrete rules," said Donald Dwyer, an EPA official in Winston, who worked on the judge rule. It acknowledged the scientific evidence that human health is not directly endangered by small amounts of pollutants that remain in the air, but it stressed the evidence that wildlife will be harmed.

The World Development Index also, a national research association of ecologic institutions that represents 24 scientists, and a coalition of 100 ecologic scientists and ecologists in the EPA's natural resources section. The EPA's current approach to set priorities and the result of these cuts, they developed, implementation plan,

[illegible]

During that time, Congress passed numerous laws and amendments, increasing EPA's workload. Just as the Reagan administration was dismantling federal agencies, it was forcing EPA to carry out its work faster. EPA could not afford to let its scientists and employees leave by standing by outside the entrance to the building during the day.

Today, the agency has one third fewer staff than when it had nearly 10,000 employees. But the agency's staff is older than it had been when it was established in 1970. In fact, only one-third (30 percent) of EPA's staff are under the age of 40. EPA has had to make do with fewer scientists and to perform in the 21st.

Scientists have the agency's largest share of the budget. The bureau of internal scientific capability, the Office of Science and Technology, which was created after the Superfund law, was charged after

## **Responses to Comments from the Desert Citizens Against Pollution**

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- 44-1. Posting the entire draft EIR document on the Internet was not deemed reasonable because of its size. The potential cost and burden of dealing with potentially global comments is well beyond the required notification of responsible and trustee agencies, and other persons or organizations requesting or previously requesting notice. However, the Executive Summary was posted on the Internet. Making documents available in local libraries is a successful method for allowing public access.
- 44-2. CEQA requires that an EIR evaluate a “reasonable range” of alternatives, not all possible alternatives. Chapter 14 of the draft EIR identifies several evaluated alternatives, and discusses others that were no longer considered because they were infeasible, did not meet the proposed project’s objectives, did not reduce any of the proposed GO’s significant environmental impacts, or would have had more severe environmental effects than the proposed GO. Landfilling is discussed as one possible outcome of the Land Application Ban Alternative (see pages 14-3 and 14-13 of the draft EIR).
- 44-3. The commenter expressed concern about the amount of radioactive materials that could be present in biosolids. Only low amounts of radioactive materials are authorized for disposal in the sewer systems. Regulatory responsibility is shared by federal, state, and local agencies. POTWs are responsible to protect their workers and therefore test to ensure that biosolids radioactivity levels are safe.

NRC issues permits for disposal of radioactive materials in the sewer system. Concentrations and quantities of radionuclides are based on a dose limit that could be received by an individual, assuming certain conservative conditions in calculating the potential dose. Additionally, the EPA POTW “pretreatment” program, under the Safe Drinking Water Act, is designed to protect POTWs by preventing the introduction into sewer systems of pollutants (including radionuclides) that would interfere with the operation of a POTW. This includes interference with a POTW’s use or disposal of sewage sludge.

The comment that the government and the public “have no idea what types and amounts of radionuclides are in sewage sludge” is not correct. The government is and has been aware that radioactive materials are disposed into the sewer system. It has actively pursued steps to control radioactivity in POTWs.

In response to the request by John Glenn, the General Accounting Office (GOA) published the report “Actions Needed to Control Radioactive Contamination at Sewage Treatment Plants” in May 1994. The report recommended that the Nuclear Regulatory Commission determine the extent of the contamination and establish limits for radionuclide levels. Radioactivity in sewage sludge was also examined by the EPA in its report “Radioactivity in Sewage Sludge”(U.S. Environmental Protection Agency 1986), which stated that most radionuclides in sewage sludge were present at low concentrations. At most sites, sewage

sludge contained radionuclides from medical treatment and research facilities. Because of their short half-lives, however, the medical contaminants were found to not produce a significant dose when sludge was land-applied.

Requiring rigorous testing for radionuclides in biosolids is not necessary because the Nuclear Regulatory Commission has developed a guidance document for POTWs for sampling and testing of biosolids for radioactivity.

Making biosolids radionuclide-free would also be unreasonable because radionuclides are present everywhere (including biosolids) at certain background levels.

- 44-4. There is no evidence that biosolids contain environmentally significant concentrations of dioxins. Dioxins are found in water, air and soil in trace quantities. Because it is found everywhere, it comes from a variety of sources and can travel long distances in the atmosphere and be deposited. Once in the air, dioxin is mostly washed out or settles on soil, plants and water. As it moves up the food chain, some of it ends up in humans through the foods they eat (particularly contaminated fish).

U.S. Dioxin Emission for Sources included by EPA in Gram of Toxic Equivalents/Year

Emission into media	Release (TEQ)	Percent of total	Range (low)	Range (high)
Air	9,300	80	3,300	26,000
Water	110	1	74	150
Land/ landfill	2,100	18	1,000	4,500
Biosolids (to land)	3	0.5		
Commercial products	150	1	100	220
Total	11,663	100		

Sources: Lois Marie Gibbs and AMSA 1995.

There are 75 different forms of dioxin. The most toxic is 2,3,7,8-tetrachlorodibenzo-p-dioxin, more commonly referred to as TCDD. TCDD was originally discovered as a byproduct in the manufacture of trichlorophenol, an intermediate chemical in the manufacturing process for some pesticides. It does not occur in a pure form in nature. Public interest began in the 1950s when employees were exposed to 2,3,7,8- TCDD as a low concentration (part per million) constituent in industrial chemical exposure incidents involving trichlorophenol.

Dioxin is formed either as a chemical contaminant of industrial processes involving chlorine or bromine, or by burning organic matter in the presence of chlorine. Certain metal compounds can act as catalysts that increase dioxin formation in industrial processes using chlorine.

As part of the ongoing refinement of the Part 503 regulations, EPA is developing regulations regarding the allowable levels of dioxin in biosolids. A proposed rule revising the standards for use and disposal of biosolids was issued by EPA in December 1999. This rule would establish a ceiling of 300 parts per trillion toxic equivalents of dioxin in land-applied biosolids. Once a decision is made on an appropriate level to protect public health (if a level is established), the SWRCB will consider amending the GO to include a dioxin limitation.

- 44-5. PCB measurements for biosolids are required under the Part 503 regulations and the results are submitted to EPA. No compilation of the data is available (Fondahl pers. comm.). Laboratory analyses by the Orange County Sanitation District, one of the largest biosolids generators, show that PCBs are below detection limits (<2.2 ppb) for the seven PCB types measured (Orange County Sanitation District 1999). Also see Responses to Comments 26-24 and 44-4.
- 44-6. The phthalate levels found in biosolids from the Orange County Sanitation District typically average less than 100 parts per million. Because they have been one of the most common plasticizers used for decades, these compounds are ubiquitous and are found in a variety of sources. The environmental fate and impacts of these chemicals are not well known or studied. The Department of Toxic Substance Control does not regulate its phthalates in hazardous waste or other wastes.
- 44-7. It is true that there are no studies being conducted about nonylphenols in California. There has been no assessment of this category of compounds as part of the EPA Part 503 risk assessment because they were not of health concern. Basically, the nonylphenol othoxylates are commonly used as detergents in many industrial processes and household products and are of concern because they are suspected of being hormone-disrupting chemicals (see Appendix E, page E-39-40, Table E-21 of draft EIR). Concentrations in biosolids are not normally measured under standard testing protocols. The environmental fate and effects of these compounds in California is not known; there are no regulatory or public health standards limiting their concentrations in products or the environment. Since they are not environmental contaminants of concern with regard to biosolids land application, there are no regulatory programs proposed to limit concentrations of these compounds.
- 44-8. Concern about potential exposure to workers has been addressed by Mitigation Measure 5-3, which was proposed in response to concerns over exposure to aerosols and particulates in the immediate vicinity of sludge loading, handling, and spreading operations. This mitigation



measure has been added to the text after draft EIR page 5-36 and is described in its entirety in response to Comment 40-4.

44-9. Comment noted. See Responses to Comments 23-5 and 23-20 and Master Response 9.

44-10. Lack of enforcement of the Clean Water Act's pretreatment programs does not necessarily translate to polluted biosolids. In fact, the National Sewage Sludge Survey was completed in 1989. Even then, the quality of most sewage sludge was determined capable for use as biosolids, after the necessary treatment. Biosolids applied under the GO would have to meet requirements. The impact of the GO is addressed in the draft EIR. It has also been noted that some people feel that the federal biosolids program does not receive the necessary resources. However, the GO will be implemented by the State. Also see Master Response 1.

44-11. See Master Responses 4 and 12.

44-12. Simply stating that 17,947,059 pounds of toxic compounds are transferred to POTWs does not correlate to the amount that is land-applied in biosolids. Only a very small fraction of these toxic compounds are in biosolids because compounds are broken down during the physical, chemical, and biological treatment processes at a wastewater treatment plant. Also, not all potentially toxic material ends up in the solids fraction leaving the wastewater treatment plant.

Toxic compounds are controlled before entering wastewater treatment plants. EPA's POTW "pretreatment" program, under the Clean Water Act, is designed to protect POTWs by preventing introduction of sewer system pollutants that would interfere with the operation of a POTW. This includes interference with the facility's use or disposal of sewage sludge. The pretreatment program involves extensive testing of numerous organic and inorganic compounds.

In EPA's development of the original Part 503 regulations, organic compounds in biosolids were assessed and determined not to be a significant concern. Research conducted since creation of the Part 503 regulations has not changed this conclusion. There are now lower detection limits of toxic compounds in biosolids. The levels in biosolids are minimal and do not pose a risk to the public or environment. The extremely low levels of toxics in biosolids will continually decrease as regulations become more stringent in the future.

44-13a. For the preapplication report, the GO requires specific testing methods (EPA methods 8080 and 8270) for numerous organic compounds including aldrin, dieldrin, PCBs, and semivolatile organics. These compounds will be tested for annually.

The pretreatment program also monitors numerous pollutants that enter the POTW. The SWRCB staff believes that these types of tests and their frequency are sufficient to determine whether biosolids meet the limitations.

44-13b. Refer to Response to Comment 47-17a.

44-13c. To ensure that biosolids applications are not a threat to public health, the GO requires several barriers of protection. One barrier is pathogen reduction requirements. These reduction practices are based from proven standard practices. Also, the GO includes several setbacks, waiting periods and other Best Management Practices (BMPs). The monitoring plan is only extra protection because all biosolids must meet the specified pathogen reduction requirements. Considerable studies determined that the specified pathogen reduction processes work.

See Master Response 4 for additional GO restrictions that are more conservative than the Part 503 regulations, and Master Responses 6 and 8.

44-13d. The GO requires groundwater monitoring for application sites where the water table is within 25 feet of the ground surface if multiple applications are planned. The minimum number and placement of monitoring wells is also specified in the GO. An RWQCB Executive Officer can also require additional monitoring or waive the monitoring if he or she deems it necessary. Also see Master Response 14.

44-13e. The commenter feels that air quality surrounding the application sites should be monitored. This proposed change has not been made because the air quality analysis determined that implementing the GO would result in less than significant air quality impacts.

44-13f. The GO contains numerous standards for protecting surface water resources from potential contamination as described in Master Responses 13 and 17. These measures provide the basis for determining that the GO would pose minimal risks to surface water quality. Additionally, monitoring is generally not considered a mechanism for reducing impacts under CEQA. Therefore, the elements of the GO must fully mitigate for potential water quality impacts.

44-13g. The NPDES system is only applicable for point source discharges to surface waters. It is not applicable to agricultural operations. Therefore, it is not needed for these types of operations.

- 44-13h. The GO does not require that bioaerosol monitoring be conducted during the handling and/or application of biosolids. However, several changes have been made to the GO that will minimize bioaerosol releases during biosolids transfer and application operations. The most relevant requirement prohibits the application of biosolids with a moisture content of less than 50%. These GO changes will ensure minimal release of wind-blown dust and aerosols during biosolids application operations. Also see Master Response 9.
- 44-13i. This comment pertains to the commenter's initial review of the proposed GO and indicates the need for a monitoring plan that identifies when maximum loadings (cumulative loading limits for metals) have taken place.

This information is required on the Annual Reporting form, Section 3 (see Appendix A). Mitigation Measure 4-3 also would require the SWRCB to establish a program to track biosolids applications, including information on loadings. This program will also monitor and determine when maximum or cumulative loading limits are being approached.

- 44-13j. No maximum loadings for organics were set in the GO because there are no significant levels in biosolids. The research conducted as part of the Part 503 regulation's development indicated that organics are not a problem in biosolids. Limits on organics may be implemented in the future depending on the results of EPA studies. However, these limits will not be restrictive because the levels of organics in biosolids are extremely low and will continue to get lower. The SWRCB will consider modifying the GO if EPA adopts modifications to the Part 503 regulations in the future. As a result of more recent information on organics, EPA is studying selected organics and has recently issued proposed limitations on certain organic compounds (dioxin). In the interim period, the requirements set forth in the GO are sufficiently conservative to protect public health and the environment.
- 44-13k. This concern is noted. There is no pathogen monitoring other than that required to demonstrate that biosolids meet either Class B or Class A requirements to support a particular use. The program is, for the most part, self-regulated by the generators. As stated in the draft EIR, there have been no reported disease incidences that could be directly related to exposure to biosolids. There is no evidence to indicate that the risk of airborne pathogens is significant. However, workers in the vicinity of mixing or spreading operations may be exposed to aerosols and particulates. For extra protection against exposure, Mitigation Measure 5-3 has been added, which recommends that workers involved in mixing, loading or spreading operations be provided respirators or dust masks. This should be considered a best management practice and is not a requirement of the GO.

See Response to Comment 40-4 for a description of Mitigation Measure 5-3.

44-14. The commenter's opinion about the suitability of the alternatives analysis in the draft EIR is noted, but SWRCB staff disagrees. A reasonable range of alternatives to the proposed project, consistent with CEQA, was evaluated in the draft EIR.